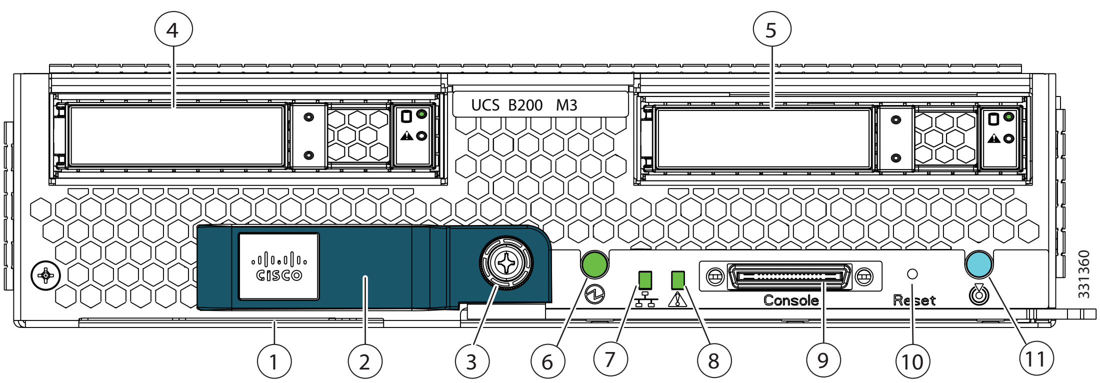


Cisco UCS B200 M3 Blade Server Installation and Service Note

The Cisco UCS B200 M3 (shown in Figure 1) is the latest Cisco Intel-based, half-width blade supporting two CPU sockets using Intel E5-2600 series CPUs and up to 24 DIMMs; it supports one modular LOM (dedicated slot for Cisco's Virtual Interface Card) and one adapter card. At this time, the UCS B200 M2 (second generation) server is still available and is documented elsewhere. You can install up to eight UCS B200 Blade Servers to a UCS chassis, mixing with other models or Cisco UCS blade servers in the chassis if desired. The Cisco UCS B200 M3 is managed by Cisco UCS Manager version 2.0(2m) and later.

Figure 1 Cisco UCS B200 M3 Front Panel



1	Asset tag [1]	**7**	Network link status LED
2	Blade ejector handle	**8**	Blade health LED
3	Ejector captive screw	**9**	Console connector
4	Hard drive bay 1	**10**	Reset button access
5	Hard drive bay 2	**11**	Beaconing LED and button
6	Power button and LED		

1.Each server has a blank plastic tag that pulls out of the front panel which is provided so that you can add your own asset tracking label without interfering with the intended air flow.

Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

LEDs

Server LEDs indicate whether the blade server is in active or standby mode, the status of the network link, the over all health of the blade server, and whether the server is set to give a flashing blue beaconing indication. See Table 1 for details.

The removable hard disks also have LEDs indicating hard disk access activity and hard disk health.

Table 1 Blade Server LEDs

LED	Color	Description
Power	Off	Power off.
	Green	Normal operation.
	Amber	Standby.
Link	Off	None of the network links are up.
	Green	At least one network link is up.
Health	Off	Power off.
	Green	Normal operation.
	Amber	Minor error.
	Blinking Amber	Critical error.
Beaconing	Off	Beaconing not enabled.
	Blinking blue 1 Hz	Beaconing to locate a selected blade—If the LED is not blinking, the blade is not selected. You can initiate beaconing in UCS Manager or with the button.
Activity (Disk Drive)	Off	Inactive.
	Green	Outstanding I/O to disk drive.
	Flashing Amber 4 Hz	Rebuild in progress. Health LED will flash in unison.
	Flashing Amber 4 hz	Identify drive active.
Health (Disk Drive)	Off	Can mean either no fault detected or the drive is not installed.
	Flashing Amber 4 hz	Identify drive active. If the Activity LED is also flashing amber, a drive rebuild is in progress.
	Amber	Fault detected.

Buttons

The Reset button is just inside the chassis and must be pressed using the tip of a paper clip or a similar item. Hold the button down for five seconds, and then release it to restart the server if other methods of restarting are not working.

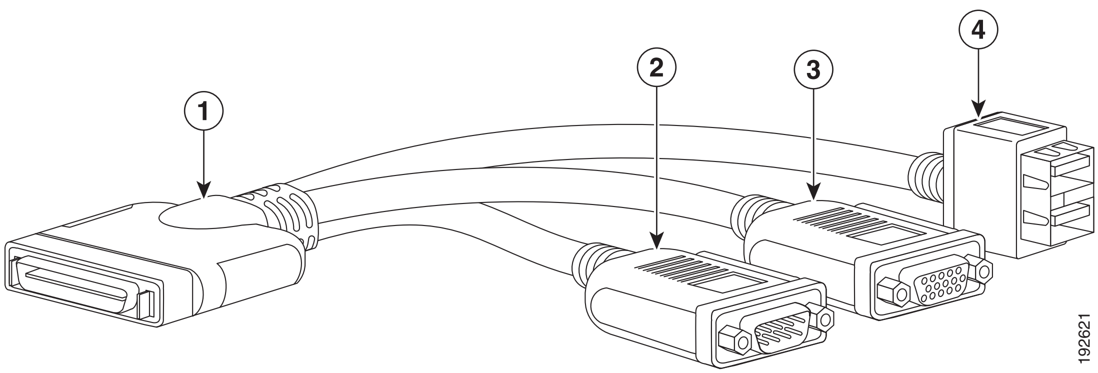
The beaconing function for an individual server may get turned on or off by pressing the combination button and LED. See Table 1 for details.

The power button and LED allows you to manually take a server temporarily out of service but leave it in a state where it can be restarted quickly. If the desired power state for a service profile associated with a blade server or an integrated rack-mount server is set to "off", using the power button or Cisco UCS Manager to reset the server will cause the desired power state of the server to become out of sync with the actual power state and the server may unexpected shutdown at a later time. To safely reboot a server from a power-down state, use the Boot Server action in Cisco UCS Manager.

Connectors

The console port allows a direct connection to a blade server to allow operating system installation and other management tasks to be done directly rather than remotely. The port uses the KVM dongle cable (N20-BKVM shown in Figure 2) which provides a connection into a Cisco UCS blade server; it has a a DB9 serial connector, a VGA connector for a monitor, and dual USB ports for a keyboard and mouse. With this cable, you can create a direct connection to the operating system and the BIOS running on a blade server. A KVM cable ships standard with each blade chassis accessory kit.

Figure 2 KVM Cable for Blade Servers



1	Connector to blade server slot	**3**	VGA connection for a monitor
2	DB9 serial connector	**4**	2-port USB connector for a mouse and keyboard

Conventions

This document uses the following conventions for notes, cautions, and safety warnings.

Notes and Cautions contain important information that you should know.

Note Means *reader take note*. Notes contain helpful suggestions or references to material that are not covered in the publication.

Caution Means *reader be careful*. You are capable of doing something that might result in equipment damage or loss of data.

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, can cause physical injuries. A warning symbol precedes each warning statement.

Warning **IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Waarschuwing **BELANGRIJKE VEILIGHEIDSINSTRUCTIES**

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus **TÄRKEITÄ TURVALLISUUSOHJEITA**

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention **IMPORTANTES INFORMATIONS DE SÉCURITÉ**

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS

Warnung **WICHTIGE SICHERHEITSHINWEISE**

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

Avvertenza **IMPORTANTI ISTRUZIONI SULLA SICUREZZA**

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Advarsel **VIKTIGE SIKKERHETSINSTRUKSJONER**

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

¡Advertencia! **INSTRUCCIONES IMPORTANTES DE SEGURIDAD**

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

Varning! **VIKTIGA SÄKERHETSANVISNINGAR**

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR

FONTOS BIZTONSÁGI ELOÍRÁSOK

Ez a figyelmezeto jel veszélyre utal. Sérülésveszélyt rejto helyzetben van. Mielott bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplo figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Предупреждение **ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ**

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告 重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의 중요 안전 지침

이 경고 기호는 위험을 나타냅니다. 작업자가 신체 부상을 일으킬 수 있는 위험한 환경에 있습니다. 장비에 작업을 수행하기 전에 전기 회로와 관련된 위험을 숙지하고 표준 작업 관례를 숙지하여 사고를 방지하십시오. 각 경고의 마지막 부분에 있는 경고문 번호를 참조하여 이 장치와 함께 제공되는 번역된 안전 경고문에서 해당 번역문을 찾으십시오.

이 지시 사항을 보관하십시오.

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES

Advarsel **VIGTIGE SIKKERHEDSANVISNINGER**

Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for legemesbeskadigelse. Før du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de oversatte advarsler, der fulgte med denne enhed.

GEM DISSE ANVISNINGER

تحذير **إرشادات الأمان الهامة**

يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض لإصابات. قبل بدء العمل، احذر مخاطر التعرض للصدمات الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في أخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز.

قم بحفظ هذه الإرشادات

Upozorenje **VAŽNE SIGURNOSNE NAPOMENE**

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE

Upozornění **DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY**

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY

Προειδοποίηση ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθεις πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ

אזהרה **הוראות בטיחות חשובות**

סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כד לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה

Opomena ВАЖНИ БЕЗБЕДНОСНИ НАПАТСТВИЈА

Симболот за предупредување значи опасност. Се наоѓате во ситуација што може да предизвика телесни повреди. Пред да работите со опремата, бидете свесни за ризикот што постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во преведените безбедносни предупредувања што се испорачани со уредот.

ЧУВАЈТЕ ГИ ОВИЕ НАПАТСТВИЈА

Ostrzeżenie **WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA**

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ

Upozornenie **DÔLEŽITÉ BEZPEČNOSTNÉ POKYNY**

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

USCHOVAJTE SI TENTO NÁVOD

Opozorilo **POMEMBNI VARNOSTNI NAPOTKI**

Ta opozorilni simbol pomeni nevarnost. Nahajate se v situaciji, kjer lahko pride do telesnih poškodb. Preden pričnete z delom na napravi, se morate zavedati nevarnosti udara električnega toka, ter tudi poznati preventivne ukrepe za preprečevanje takšnih nevarnosti. Uporabite obrazložitveno številko na koncu posameznega opozorila, da najdete opis nevarnosti v priloženem varnostnem priročniku.

SHRANITE TE NAPOTKE!

警告 重要安全性指示
此警告符號代表危險，表示可能造成人身傷害。使用任何設備前，請留心電路相關危險，並熟悉避免意外的標準作法。您可以使用每項警告後的聲明編號，查詢本裝置隨附之安全性警告譯文中的翻譯。
請妥善保留此指示

Installing and Removing a Blade Server Hard Drive

There are up to two front-accessible, hot-swappable, 2.5-inch drives per blade. An LSI SAS 2004 RAID controller is embedded in the motherboard (it is not separately replaceable), and it supports RAID 0 and 1. You can remove blade server hard drives without removing the blade server from the chassis. All other component replacements for a blade server requires removing the blade from the chassis. Unused hard drive bays should always be covered with cover plates (N20-BBLKD) to ensure proper cooling and ventilation. The chassis is omitted from illustrations here to simplify the drawing.

Caution To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.

Caution RAID array migration between a B200 M1 or B200 M2 and a B200 M3 is not supported

Replacing an HDD or SSD with a drive of the same size, model, and manufacturer should not cause any problems with UCS Manager. If the drive being replaced was part of a RAID array. we recommend using a newly ordered drive of identical size, model, and manufacturer to replace the failed drive. We recommend following industry standard practice of using drives of the same capacity when creating

RAID volumes. If drives of different capacities are used, the useable portion of the smallest drive will be used on all drives that make up the RAID volume. Before upgrading or adding an HDD to a running system, check the service profile in UCS Manager to make sure that the new hardware configuration is within the parameters allowed by the service profile.

Hard disk and RAID troubleshooting information is in the "Troubleshooting Server Hardware" chapter of the *Cisco UCS Troubleshooting Guide*. This provides a procedure for moving a RAID array between B200 M3 servers if needed.

The drives supported in this blade server are all hot pluggable and come with the drive sled attached. Spare drive sleds are not available. The drives supported in this blade server are constantly being updated. A list of currently supported and available drives is in the specification sheets at:

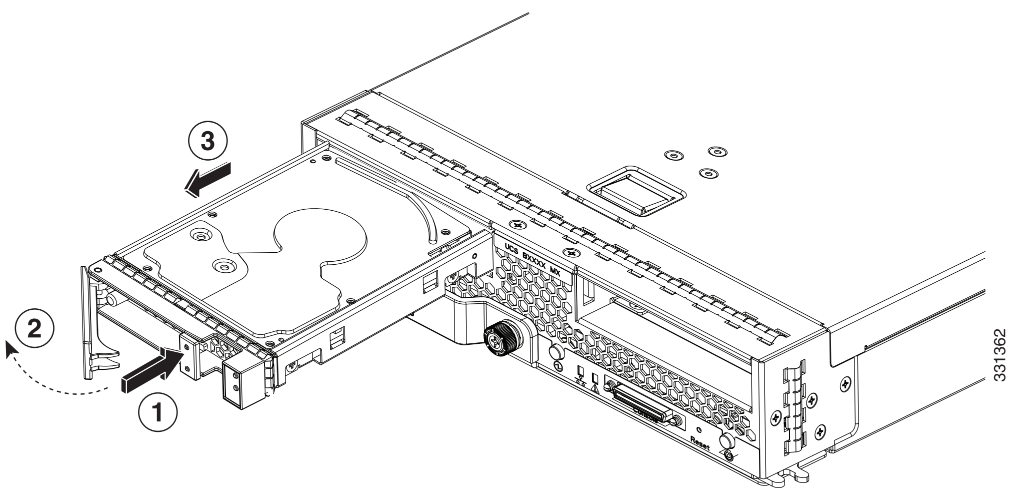
http://www.cisco.com/en/US/products/ps10280/products_data_sheets_list.html

Removing a Blade Server Hard Drive

To remove a hard drive from a blade server, follow these steps:

Step 1 Push the button to release the ejector, and then pull the hard drive from its slot.

Figure 3 Removing the Hard Drive



Step 2 Place the hard drive on an antistatic mat or antistatic foam if you are not immediately reinstalling it in another server.

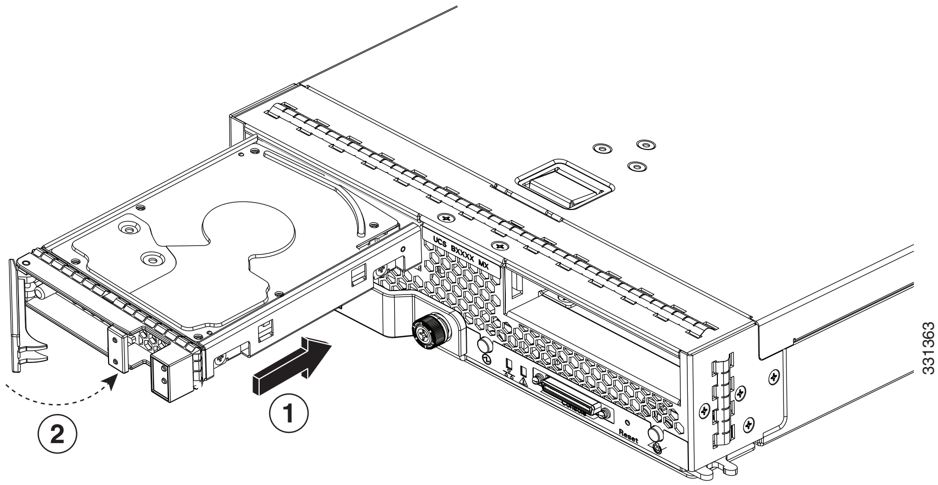
Step 3 Install a hard disk drive blank faceplate (N20-BBLKD) to keep dust out of the blade server if the slot will remain empty.

Installing a Blade Server Hard Drive

To install a blade server hard drive in a blade server, follow these steps:

Step 1 Place the hard drive lever into the open position by pushing the release button (see Figure 4).

Figure 4 Installing a Hard Drive in a Blade Server



Step 2 Gently slide the hard drive into the opening in the blade server until it seats into place.

Step 3 Push the hard drive lever into the closed position.

You can use UCS Manager to format and configure RAID services. Refer to the UCS Manager configuration guide for your software release for details on RAID configuration.

If you need to move a RAID cluster, refer to the Moving a RAID Cluster section of the "Troubleshooting Server Hardware" chapter of the *Cisco UCS Troubleshooting Guide*.

Removing and Installing a UCS B200 M3 Blade Server

Before performing any of the following internal operations on this blade server, you must remove it from the chassis. To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.

Caution To prevent ESD damage, wear grounding wrist straps during these procedures and handle modules by the carrier edges only.

Shutting Down and Powering Off a Blade Server

The server can run in two power modes:

- Main power mode—Power is supplied to all server components, and any operating system on your hard drives can run.
- Standby power mode—Power is supplied only to the service processor and the cooling fans, and it is safe to power off the server from this mode.

After establishing a connection to the blade server's operating system, you can directly shut down the blade server using the operating system.

You can invoke a graceful shutdown or an emergency shutdown (hard shutdown) by using either of the following methods:

- Use the UCS Manager. See either the *Cisco UCS Manager GUI Configuration Guide* or the *Cisco UCS Manager CLI Configuration Guide*.
- Use the Power button on the server front panel.

To use the Power button, follow these steps:

Step 1 Check the color of the Power Status LED.

- Green indicates that the server is in main power mode and must be shut down before it can be safely powered off. Go to Step 2.
- Amber indicates that the server is already in standby mode and can be safely powered off. Go to Step 3.

Step 2 Invoke either a graceful shutdown or a hard shutdown:

Caution To avoid data loss or damage to your operating system, you should always invoke a graceful shutdown of the operating system.

- Graceful shutdown—Press and release the Power button. The operating system performs a graceful shutdown and the server goes to standby mode, which is indicated by an amber Power Status LED.
- Emergency shutdown—Press and hold the Power button for 4 seconds to force the main power off and immediately enter standby mode.

Step 3 If you are shutting down all blade servers in a chassis, you should now disconnect the power cords from the chassis to completely power off the servers. If you are only shutting down one server, you can skip unplugging the chassis and move to removing the server.

Removing a Cisco UCS B200 M3 Blade Server

Using UCS Manager, decommission the server before physically removing the server. To remove a blade server from the chassis, follow these steps:

Step 1 Loosen the captive screw on the front of the blade.

Step 2 Remove the blade from the chassis by pulling the ejector lever on the blade until it unseats the blade server.

Step 3 Slide the blade part of the way out of the chassis, and place your other hand under the blade to support its weight.

Step 4 Once removed, place the blade on an antistatic mat or antistatic foam if you are not immediately reinstalling it into another slot.

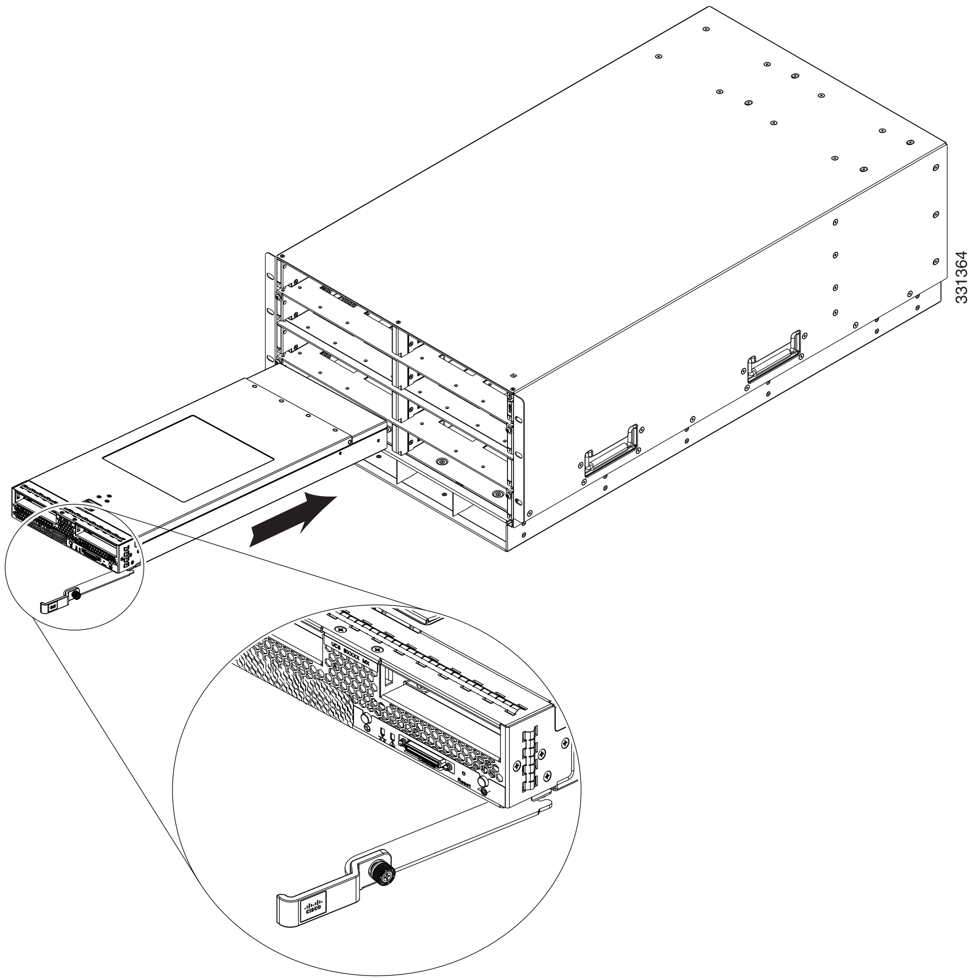
Step 5 If the slot is to remain empty, install a blank faceplate (N20-CBLKB1) to keep dust out of the chassis.

Installing a Cisco UCS B200 M3 Blade Server

UCS B200 M3 blade servers are interoperable in a UCS chassis with any other UCS blade servers, including prior generation B200 M2 and B200 M1 servers, or other UCS B-Series blade servers. To install a blade server, follow these steps:

Step 1 Grasp the front of the blade server and place your other hand under the blade to support it. See Figure 5.

Figure 5 Positioning a Blade Server in the Chassis



Step 2 Open the ejector lever in the front of the blade server.

Step 3 Gently slide the blade into the opening until you cannot push it any farther.

Step 4 Press the ejector lever so that it catches the edge of the chassis and presses the blade server all the way in.

Step 5 Tighten the captive screw on the front of the blade to no more than 3 in-lbs. Tightening with bare fingers only is unlikely to lead to stripped or damaged captive screws.

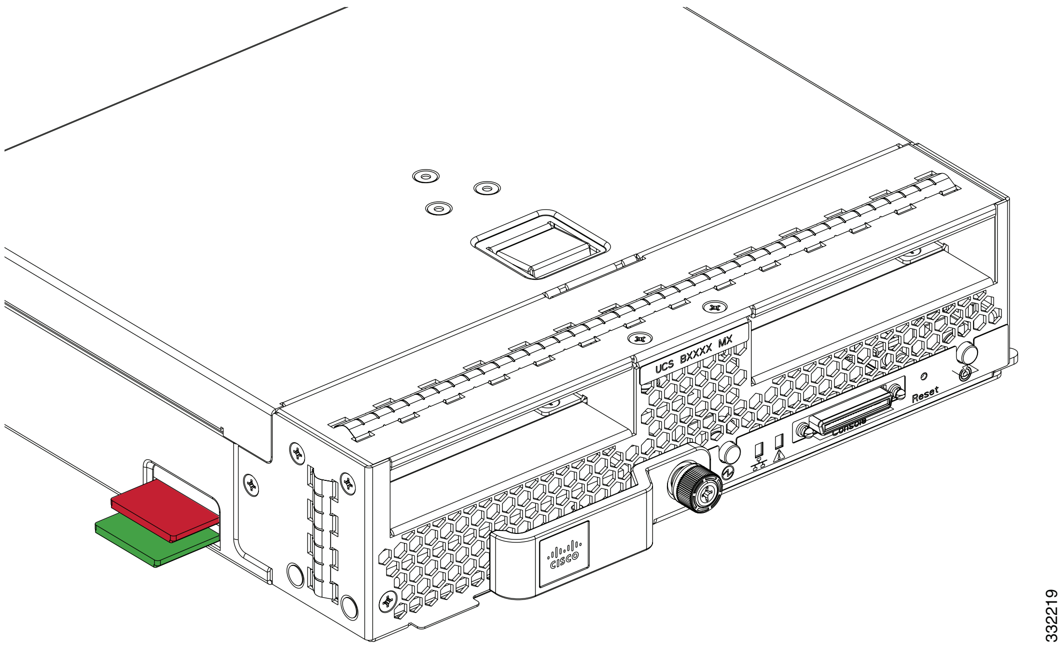
Step 6 Power on the server. UCS Manager automatically reacknowledges, reassociates, and recommissions the server, provided any hardware changes are allowed by the service profile.

Figure 5 shows the positioning of a blade server in the chassis. Blade servers reside within the eight upper slots of the chassis.

Secure Digital (SD) Card Access

SD card slots are provided for future usage. Their use is not supported at product release. They will require a future software update to be used.

Figure 6 SD Card Slot Locations



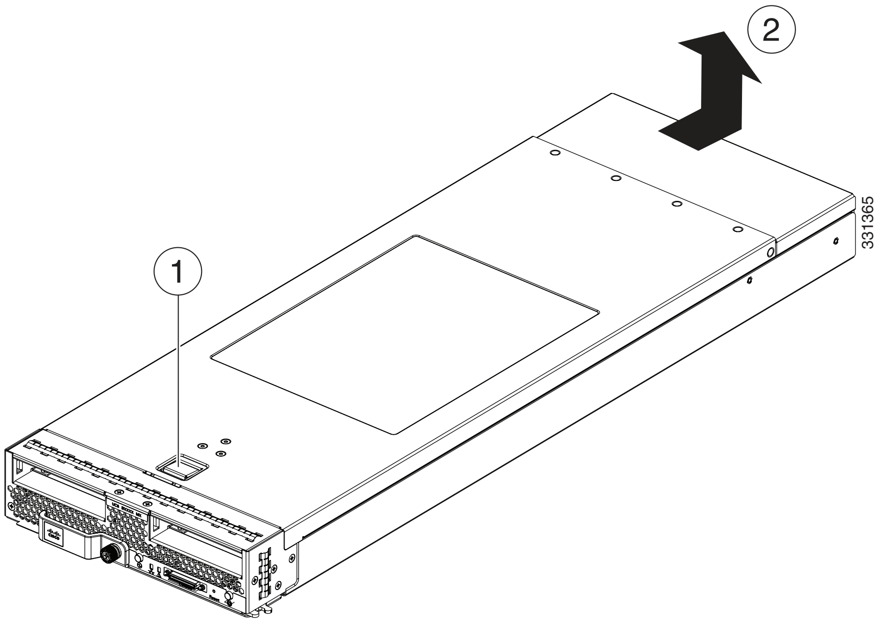
Removing a Blade Server Cover

To open a blade server, follow these steps:

Step 1 Press and hold the button down as shown in Figure 7.

Step 2 While holding the back end of the cover, pull the cover up and back.

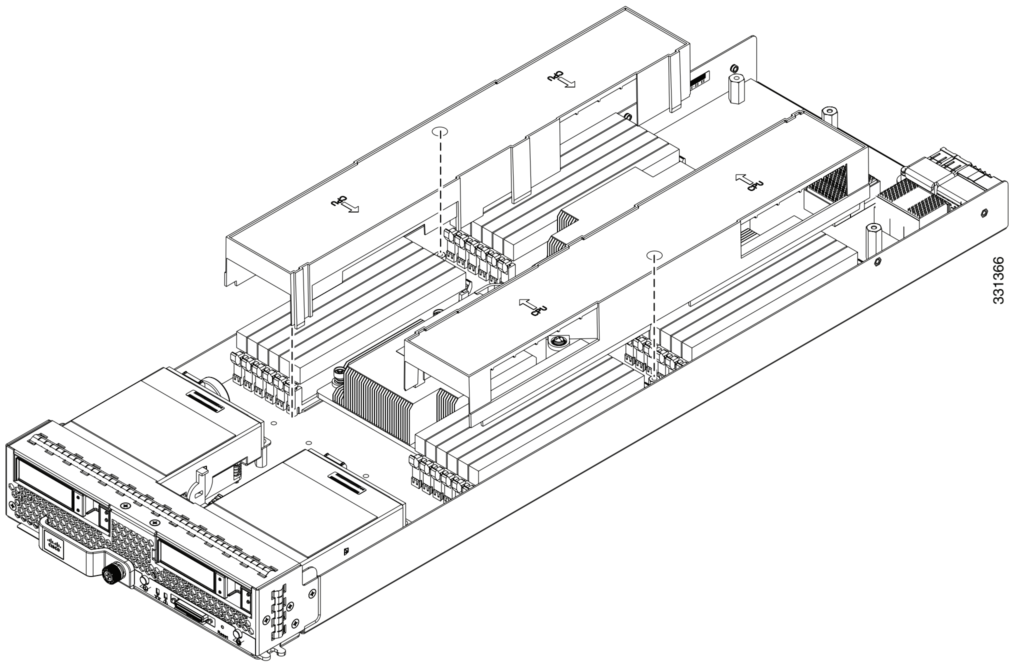
Figure 7 Opening a Cisco UCS B200 M3 Blade Server



Air Baffles

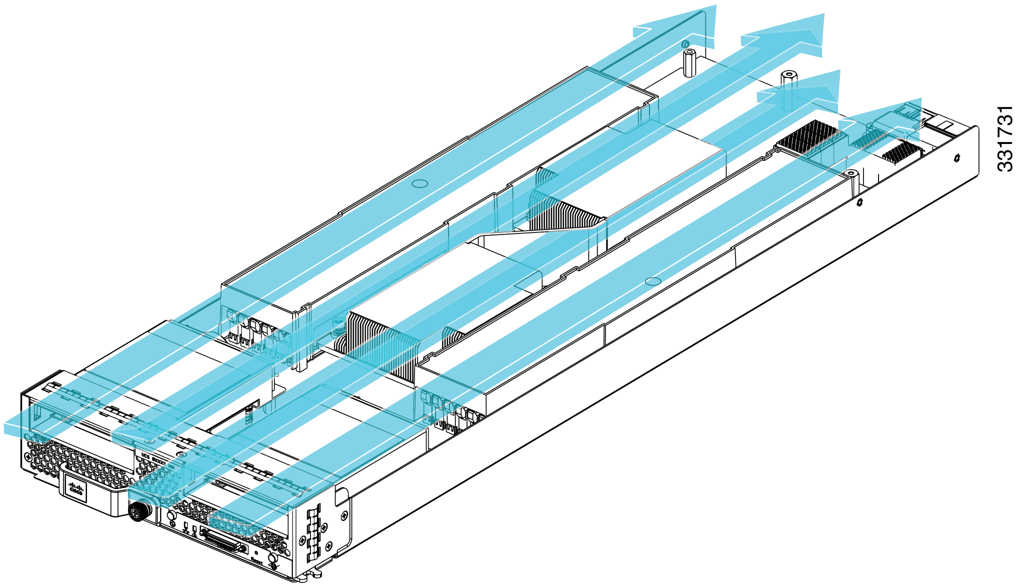
The air baffles (shown in Figure 8) direct and improve air flow for the server components. Two identical baffles ship with each B200 M3 server. No tools are necessary to install them, just place them over the DIMMs as shown, with the holes in the center of the baffles aligned with the corresponding motherboard standoffs.

Figure 8 Cisco UCS B200 M3 Air Baffles



Once installed, the air baffles direct the intake air into four distinct lanes as shown in Figure 9.

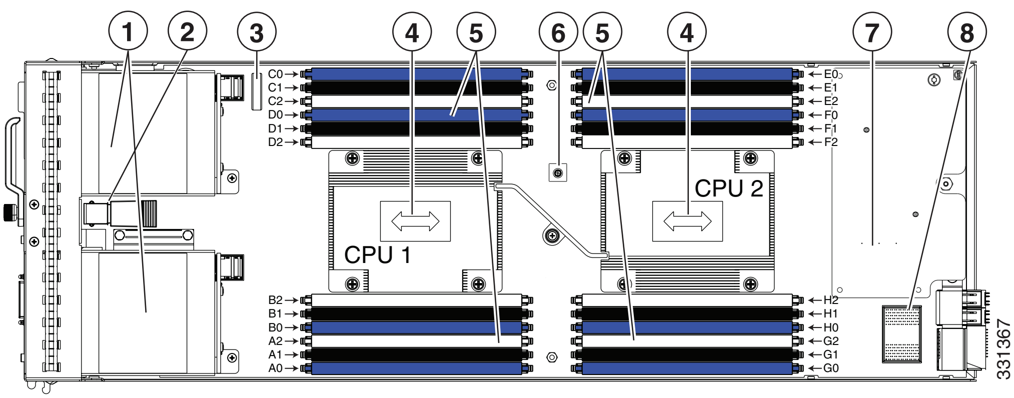
Figure 9 Cisco UCS B200 M3 Air Flow



Internal Components

Figure 10 calls out the various components within the blade server.

Figure 10 Inside View of a Blade Server



1	Hard drive bays	**2**	Internal USB connector [1]
3	Battery	**4**	CPU and heat sink
5	DIMM slots	**6**	Diagnostic button
7	Modular LOM (shown installed)	**8**	Adapter card connector (Adapter not shown installed)

1. Cisco UCS-USBFLSH-S-4GB= is recommended, but if another USB drive will be used it must be no wider than .8 inches, and no more than 1.345 inches long in order tp provide needed clearances to install or remove the USB drive.

Note Use of this server may require an upgrade to the IOM in the chassis. This server only supports third generation adapter cards, which have features requiring a Cisco 2204 or 2208 IOM, and are not backward compatible with the Cisco 2104 IOM.

Diagnostics Button and LEDs

At blade start-up, Power-on Self Test (POST) diagnostics test the CPUs, DIMMs, HDDs and adapter cards. Any failure notifications are sent to Cisco Ucs Manager. You can view these notification in the System Error Log or in the output of the **show tech-support** command. If errors are found, an amber diagnostic LED also lights up next to the failed component. During run time, the blade BIOS, component drivers, and OS all monitor for hardware faults and the amber diagnostic LED for a component lights up if an uncorrectable error or correctable errors (such as a host ECC error) over the allowed threshold occur.

LED states are saved. If you remove the blade from the chassis, the LED values are preserved in memory for up to 10 minutes. Pressing the LED diagnostics button on the motherboard causes the LEDs that currently show a component fault to light for up to 30 seconds for easier component identification. LED fault values are reset when the blade is reinserted into the chassis and booted, and the process begins again.

If DIMM insertion errors are detected, they may cause the blade discovery to fail and errors will be reported in the server POST information, viewable using the UCS Manager GUI or CLI. Cisco UCS blade servers require specific rules to be followed when populating DIMMs in a blade server, and the rules depend on the blade server model. Refer to the section on DIMM population for those rules.

Drive status LEDs are on the front face of the drive. Faults on the CPU, DIMMs, or adapter cards also cause the server health LED to light solid amber for minor error conditions or blinking amber for critical error conditions.

Working Inside the Blade Server

This section describes how to perform the following tasks within a blade server:

- Installing a Motherboard CMOS Battery, page 19
- Removing and Installing a CPU and Heat Sink, page 20
- Installing Memory, page 27
- Installing an Adapter Card, page 33

Installing a Motherboard CMOS Battery

This server supports the CR2032 CMOS battery (N20-MBLIBATT).

Warning **There is danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.**
Statement 1015

To install or replace a motherboard complementary metal-oxide semiconductor (CMOS) battery, follow these steps:

Step 1 Remove a motherboard CMOS battery:

a. Power off the blade, remove it from the chassis, and remove the top cover as described in the "Removing a Blade Server Cover" section on page 15.

b. Press the battery socket retaining clip toward the chassis wall (see Figure 11).

c. Lift the battery from the socket. Use needle-nose pliers to grasp the battery if there is not enough clearance for your fingers.

Step 2 Install a motherboard CMOS battery:

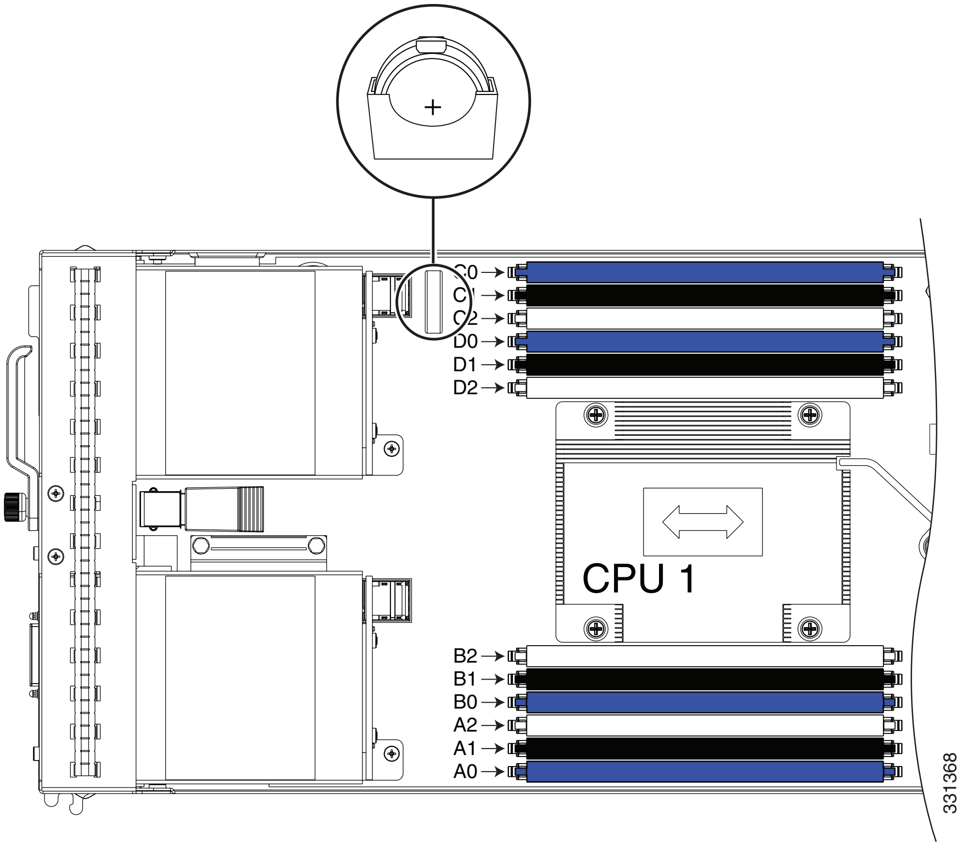
a. Press the battery socket retaining clip toward the chassis wall.

b. Insert the new battery into the socket with the battery's negative (–) marking toward the chassis wall. Ensure that the retaining clip clicks over the top of the battery.

c. Replace the top cover.

d. Replace the server in the chassis and power on the blade by pressing the Power button.

Figure 11 Removing and Replacing a Motherboard CMOS Battery



Removing and Installing a CPU and Heat Sink

You can only order your blade server with two CPUs, but at some point you may choose to upgrade them to a different type. Both CPUs must be of the same type, and memory in slots intended for the second CPU will not be recognized if the second CPU is not present (see Memory Arrangement). You may need to use these procedures to move a CPU from one server to another, or to replace a faulty CPU.

The CPUs supported in this blade server are constantly being updated, a list of currently supported and available CPUs is in the specification sheets at this URL:

http://www.cisco.com/en/US/products/ps10280/products_data_sheets_list.html

Caution The CPU pick and place tool shown in Figure 13 and Figure 15 is required to prevent damage to the connection pins between the motherboard and the CPU. Do not attempt this procedure without the required tool, which is included with each CPU option kit.

To remove a CPU and heat sink, follow these steps:

Step 1 Unscrew the four captive screws securing the heat sink to the motherboard. See Figure 12, callout 1.

Loosen one screw by a quarter turn, then move to the next in the X pattern shown in Figure 17 on page 26. Continue loosening until the heat sink can be lifted off.

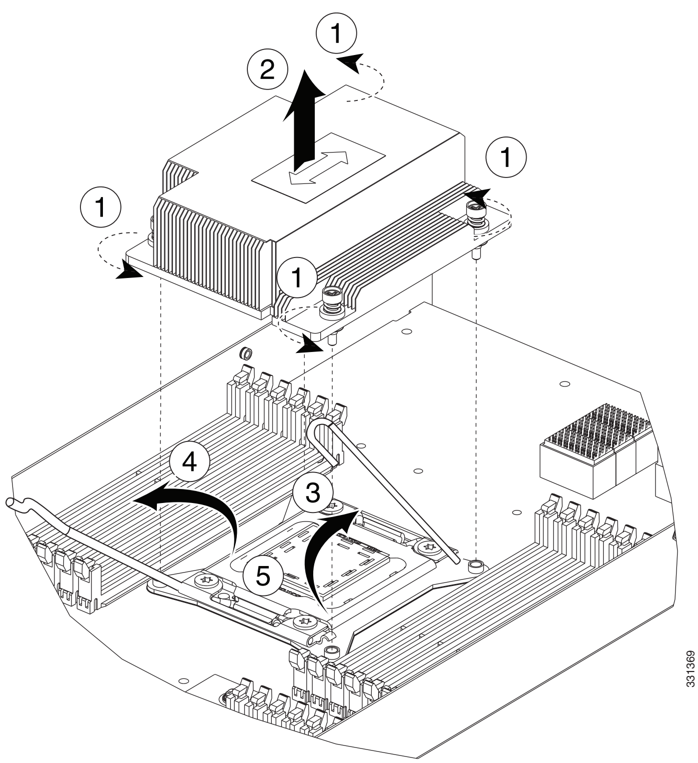
Step 2 Remove the heat sink. See Figure 12, callout 2. Remove the existing thermal compound from the bottom of the heat sink using the cleaning kit (UCSX-HSCK=) included with each CPU option kit. Follow the instructions on the two bottles of cleaning solvent.

Step 3 Unhook the first socket hook, marked with an icon. See Figure 12, callout 3.

Step 4 Unhook the second socket hook, marked with an icon. See Figure 12, callout 4.

Step 5 Open the socket latch. See Figure 12, callout 5.

Figure 12 Removing the Heat Sink and Accessing the CPU Socket (UCS B200 M3 Server Shown)



Step 6 Press the central button on the provided CPU pick and place tool (UCS-CPU-EP-PNP=) to release the catch. See Figure 13.

The CPU pick and place tool is included with each CPU option kit, or the tool may be purchased separately. Be sure to use the tool for the Intel Xeon E5-2600 Series processors.

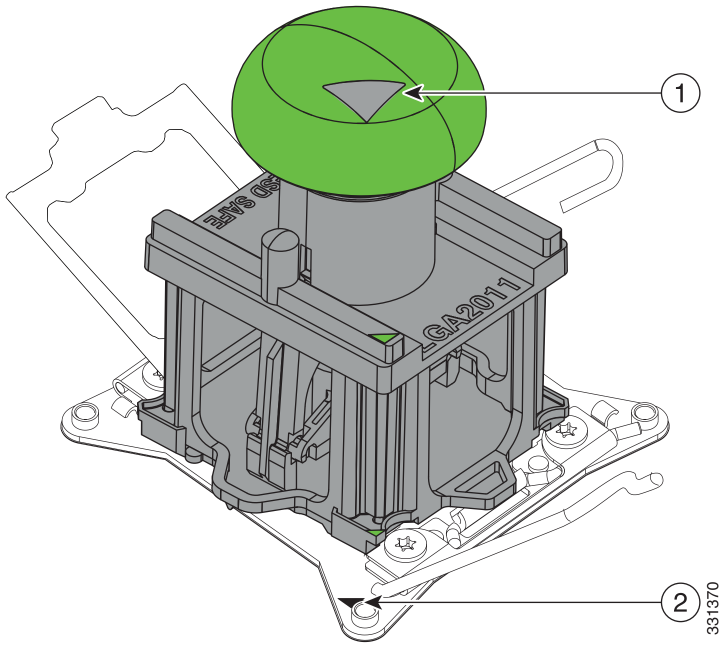
Step 7 Remove an old CPU as follows:

a. Place the CPU pick and place tool on the CPU socket aligned with the arrow pointing to the CPU registration mark as shown in Figure 13.

b. Press the button/handle on the tool to grasp the installed CPU.

c. Lift the tool and CPU straight up.

Figure 13 Proper Alignment of CPU Pick and Place Tool (for Intel Xeon E5-2600 Series Processors)



1	Alignment mark on the button/handle of the pick and place tool	**2**	Alignment mark on the socket

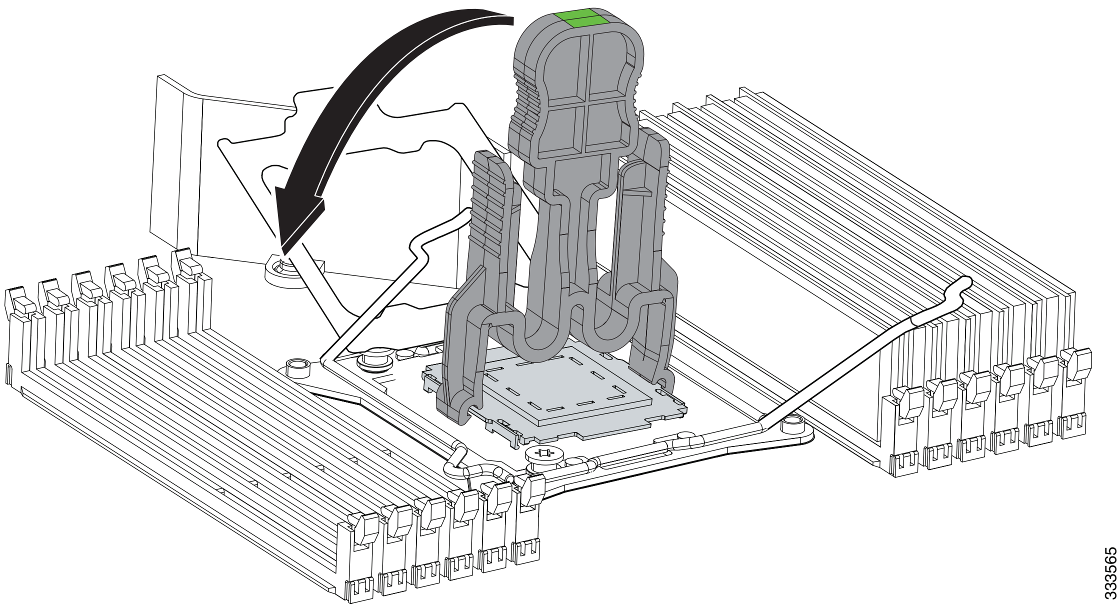
Installing a New CPU and Heat Sink

Before installing a new CPU in a server, verify the following:

- The CPU is supported for that given server model. This may be verified via the server's Technical Specifications ordering guides (see Installing Memory, page 27) or by the relevant release of the Cisco UCS Capability Catalog.
- A BIOS update is available and installed that supports the CPU and the given server configuration.
- If the server will be managed by Cisco UCS Manager, the service profile for this server in UCS Manager will recognize and allow the new CPU.

If you are installing a CPU in a socket that had been shipped empty, there will be a protective cap intended to prevent bent or touched contact pins. The pick and pull cap tool provided (See Figure 14) can be used in a manner similar to a pair of tweezers. Grasp the protective cap and pivot as shown.

Figure 14 Protective Cap Removal



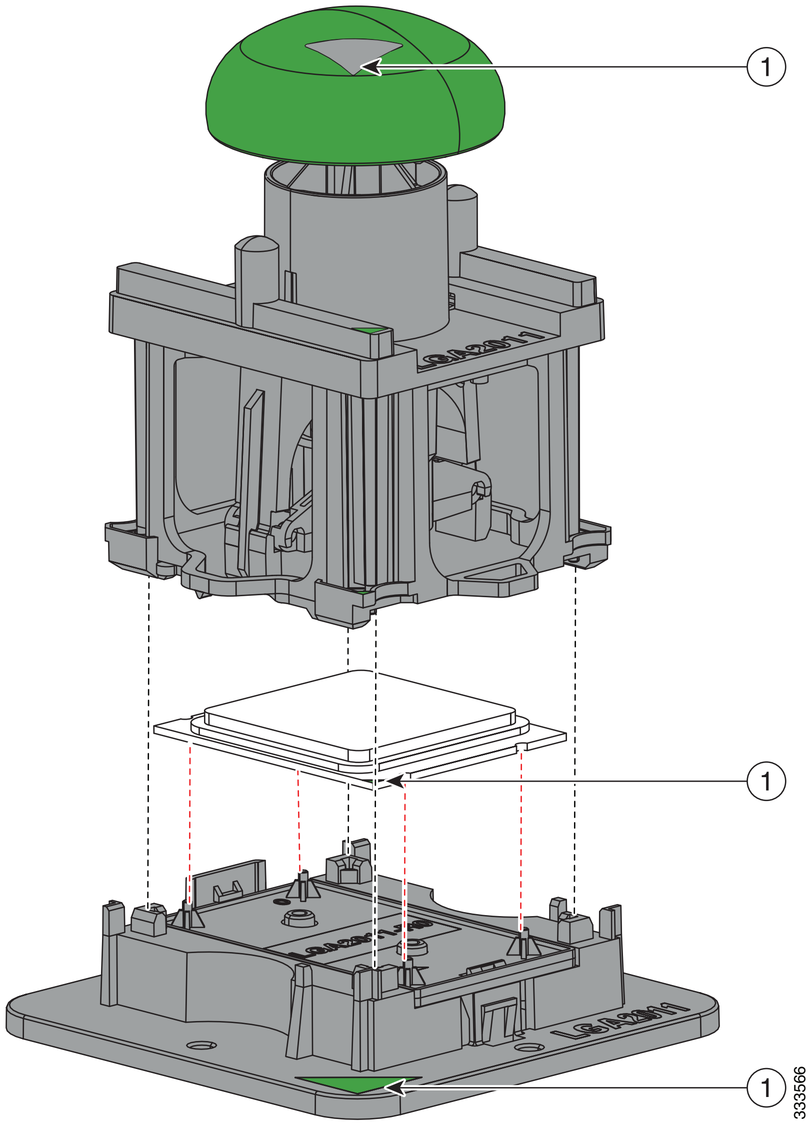
To install a CPU and heat sink, follow these steps:

Step 1 Release the catch on the pick and place tool by pressing the handle/button.

Step 2 Remove the new CPU from the packaging, and load it into the pick and place tool as follows (see Figure 15):

- **a.** Confirm that the pedestal is set up correctly for your processor. The pedestal ships configured with the markings “LGA2011-R0” facing upward, and this is the correct orientation.
- **b.** Place the CPU on the pedestal. The CPU corners should fit snugly at the pedestal corners and the notches should meet the pegs perfectly.
- **c.** Place the CPU pick and place tool on the CPU pedestal aligned with the A1 arrow pointing to the A1 registration mark on the pedestal.
- **d.** Press the button/handle on the tool to grasp the CPU.
- **e.** Lift the tool and CPU straight up off of the pedestal.

Figure 15 Loading the Pick and Place Tool

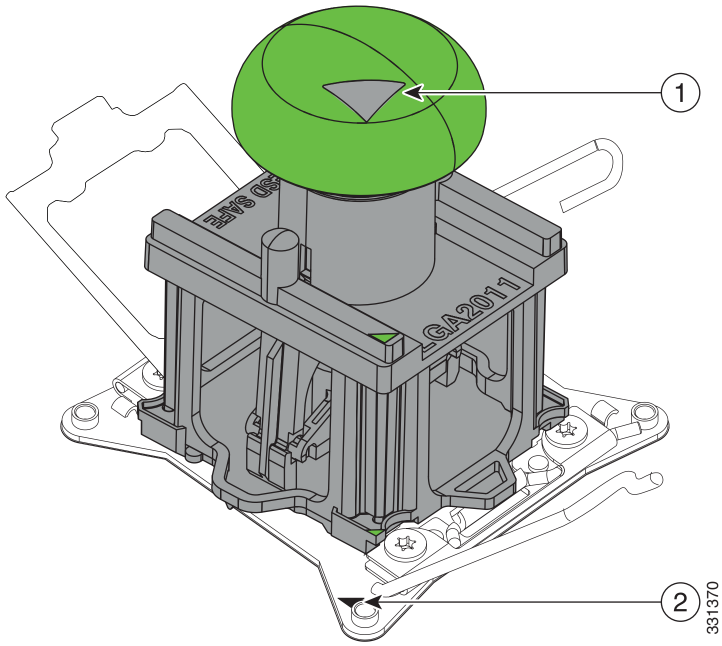


1	Alignment mark on the pick and place tool, CPU and pedestal		

Step 3 Place the CPU and tool on the CPU socket with the registration marks aligned as shown in Figure 16.

Step 4 Press the button/handle on the pick and place tool to release the CPU into the socket.

Figure 16 Using the CPU Pick and Place Tool to Insert the CPU



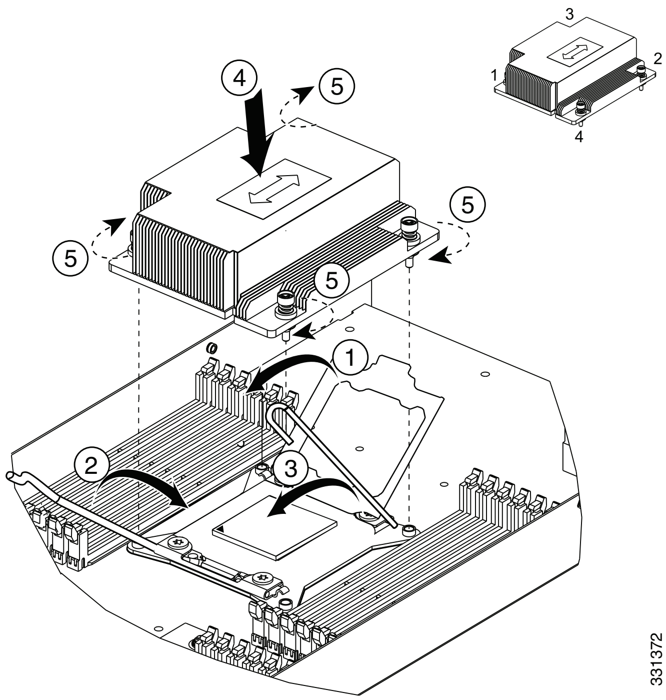
1	Alignment mark on the tool button/handle	**2**	Alignment mark on the CPU socket

Step 5 Close the socket latch. See Figure 17, callout 1.

Step 6 Secure the first hook, marked with an 🔒 icon. See Figure 17, callout 2.

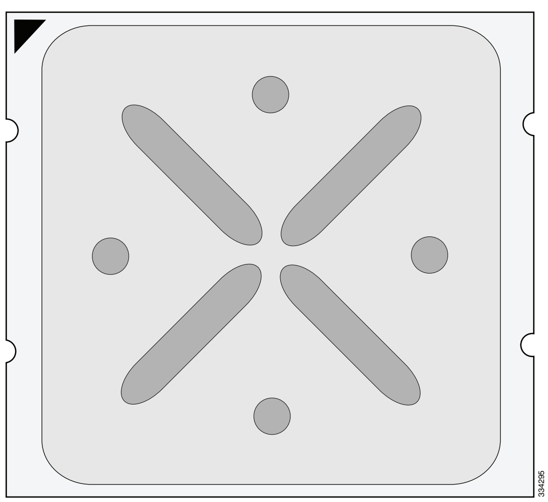
Step 7 Secure the second hook, marked with an 🔓 icon. See Figure 17, callout 3.

Figure 17 Replacing the Heat Sink (B200 M3 Shown)



Step 8 Using the syringe of thermal grease provided with replacement CPUs and servers (and available separately as UCS-CPU-GREASE=, the only exceptions are Cisco UCS C220 M3 and and C240 M3 servers which use UCS-CPU-GREASE2= instead), add 2 cubic centimeters of thermal grease to the top of the CPU where it will contact the heat sink. Use the pattern shown in Figure 18. This should require half the contents of the syringe.

Figure 18 Thermal Grease Application Pattern



Caution The thermal grease has very specific thermal properties, and thermal grease from other sources should not be substituted. Using other thermal grease may lead to damage.

Step 9 Replace the heat sink. See Figure 17, callout 4.

Caution On certain models, heat sinks are keyed to fit into the plastic baffle extending from the motherboard. Do not force a heat sink if it is not fitting well, rotate it and re-orient the heat sink.

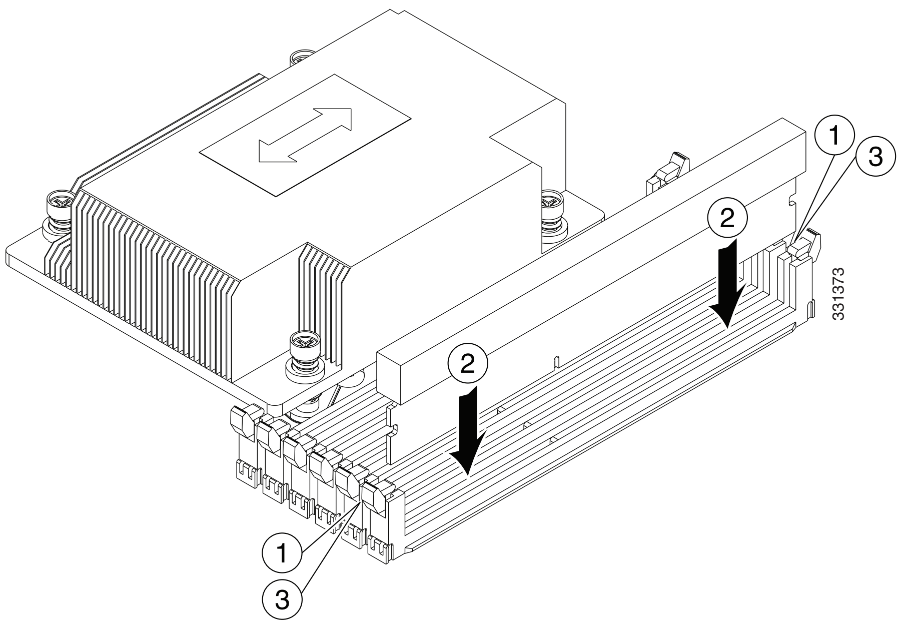
Step 10 Secure the heat sink to the motherboard by tightening the four captive screws a quarter turn at a time in an X pattern as shown in the upper right of Figure 17.

Installing Memory

To install a DIMM into the B200 M3 blade server, follow these steps:

Step 1 Open both DIMM connector latches.

Figure 19 Installing DIMMs in the Blade Server



Step 2 Press the DIMM into its slot evenly on both ends until it clicks into place.

DIMMs are keyed, if a gentle force is not sufficient, make sure the notch on the DIMM is correctly aligned.

Step 3 Press the DIMM connector latches inward slightly to seat them fully.

Memory and Performance

This section describes the type of memory that the B200 M3 blade server requires, and its effect on performance. The following topics are covered:

- Supported DIMMs, page 28
- Memory Arrangement, page 28
- Memory Performance, page 31
- Memory Mirroring and RAS, page 31

Supported DIMMs

The DIMMs that are supported in this blade server are constantly being updated. A list of currently supported and available DIMMs is in the specification sheets at this URL:

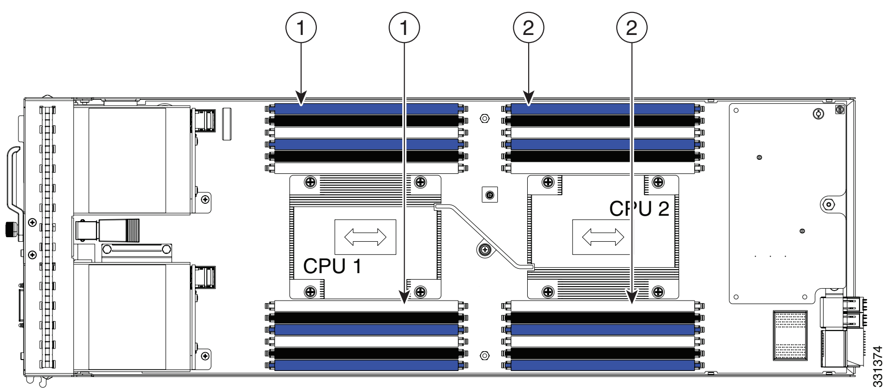
http://www.cisco.com/en/US/products/ps10280/products_data_sheets_list.html

Cisco does not support third-party memory DIMMs, and in some cases their use may irreparably damage the server and require an RMA and down time.

Memory Arrangement

The blade server contains 24 DIMM slots—12 for each CPU. Each set of 12 DIMM slots is arranged into four channels, where each channel has three DIMMs (see Figure 20 and Figure 21).

Figure 20 Memory Slots within the Blade Server



1	Channels A-D for CPU 1	**2**	Channels E-H for CPU 2

DIMMs and Channels

Each channel is identified by a letter—A, B, C, D for CPU1, and E, F, G, H for CPU 2. Each DIMM slot is numbered 0, 1, or 2. Note that each DIMM slot 0 is blue, each slot 1 is black, and each slot 2 is off-white or beige.

Figure 21 shows how DIMMs and channels are physically laid out on the blade server. The DIMM slots in the upper and lower right are associated with the second CPU (CPU shown on right in the diagram), while the DIMM slots in the upper and lower left are associated with the first CPU (CPU shown on left).

Figure 21 Physical Representation of DIMMs and Channels

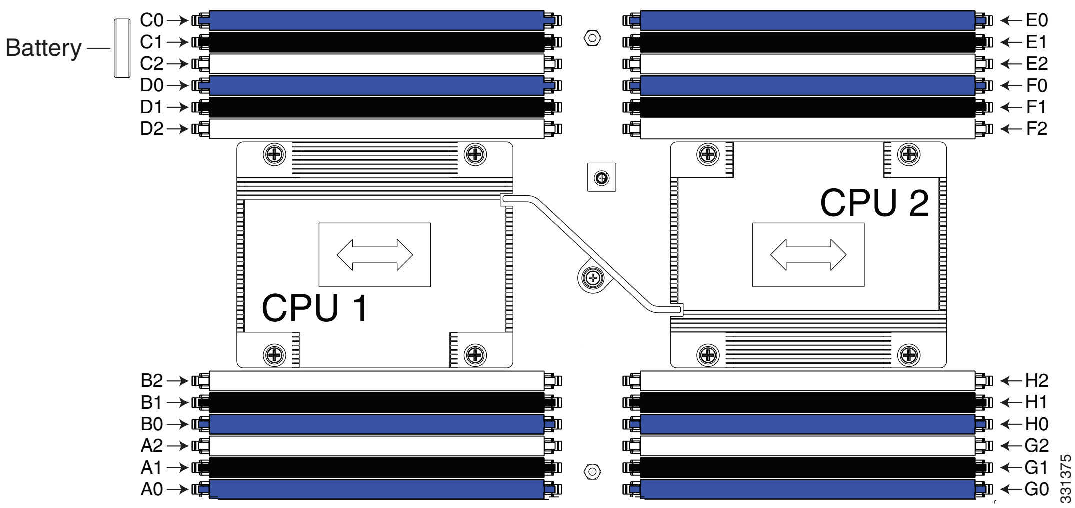
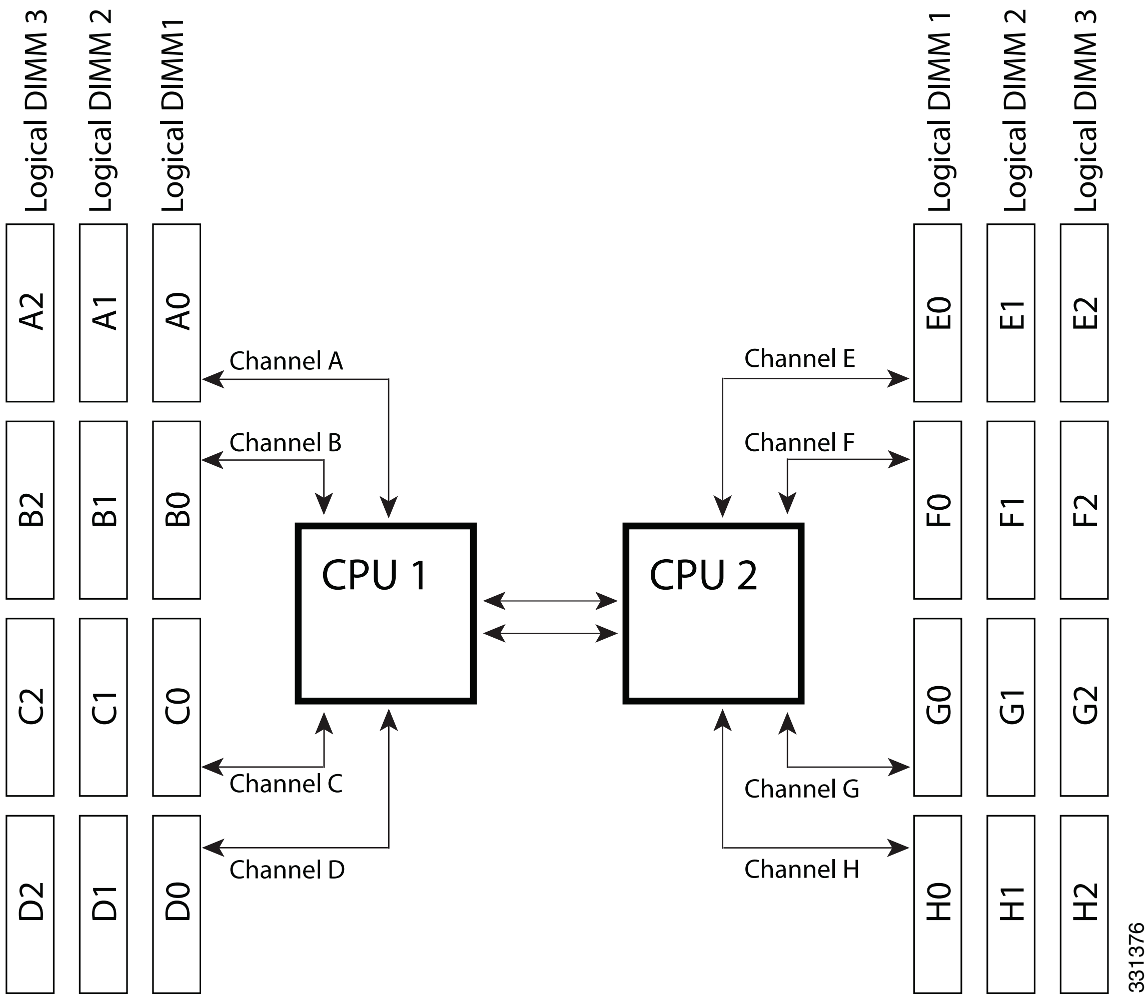


Figure 22 shows a logical view of the DIMMs and channels.

Figure 22 Logical Representation of DIMMs and Channels



DIMMs can be used in the blade server in a one DIMM per Channel (1DPC) configuration, in a two DIMMs per Channel (2DPC) configuration, or a three DIMMs per Channel (3DPC) configuration.

Each CPU in a Cisco UCS B200 M3 blade server supports four channels of three memory slots each. In a 1 DPC configuration, DIMMs are in slot 0 only. In a 2 DPC configuration, DIMMs are in both slot 0 and slot 1. In a 3 DPC configuration, DIMMs are in slot 0, slot 1, and slot 2.

Table 2 shows the supported order for installing upgrade DIMMs.

Table 2 Preferred DIMM Population Order

DIMMs per CPU	CPU 1 installed slots	CPU 2 installed slots
1	A0	E0
2	A0, B0	E0, F0
3	A0, B0, C0	E0, F0, G0

Table 2 Preferred DIMM Population Order

DIMMs per CPU	CPU 1 installed slots	CPU 2 installed slots
4 (Blue slots)	A0, B0, C0, D0	E0, F0, G0, H0
5	A0, B0, C0, D0 A1	E0, F0, G0, H0 E1
6	A0, B0, C0, D0 A1, B1	E0, F0, G0, H0 E1, F1
7	A0, B0, C0, D0 A1, B1, C1	E0, F0, G0, H0 E1, F1, G1
8 (Blue and black slots)	A0, B0, C0, D0 A1, B1, C1, D1	E0, F0, G0, H0 E1, F1, G1, H1
9	A0, B0, C0, D0 A1, B1, C1, D1 A2	E0, F0, G0, H0 E1, F1, G1, H1 E2
10	A0, B0, C0, D0 A1, B1, C1, D1 A2, B2	E0, F0, G0, H0 E1, F1, G1, H1 E2, F2
11	A0, B0, C0, D0 A1, B1, C1, D1 A2, B2, C2	E0, F0, G0, H0 E1, F1, G1, H1 E2, F2, G2
12 (Blue, black and beige slots)	A0, B0, C0, D0 A1, B1, C1, D1 A2, B2, C2, D2	E0, F0, G0, H0 E1, F1, G1, H1 E2, F2, G2, H2

Memory Performance

When considering the memory configuration of your blade server, there are several things you need to consider. For example:

- When mixing DIMMs of different densities, the highest density DIMM goes in slot 0 then in descending density (ex: A0: UCS-MR-1X162RY-A , A1: UCS-MR-1X082RY-A, A2: UCS-MR-1X041RY-A)
- Your selected CPU(s) can have some affect on performance.
- DIMMs can be run in a 1DPC, a 2DPC, or a 3DPC configuration. 1 DPC and 2DPC can provide the maximum rated speed that the CPU and DIMMs are rated for. 3DPC causes the DIMMs to run at a slower speed.

Memory Mirroring and RAS

The Intel E5-2600 CPUs within the blade server support memory mirroring only when an even number of Channels are populated with DIMMs. If one or three channels are populated with DIMMs, memory mirroring is automatically disabled. Furthermore, if memory mirroring is used, DRAM size is reduced by 50 percent for reasons of reliability.

Installing a Modular LOM

The Cisco VIC 1240 is a specialized modular Lan on Motherboard (mLOM) adapter that provides dual 2 x 10 Gb of Ethernet/ or Fiber Channel over Ethernet (FCoE) connectivity to each chassis. It plugs into the dedicated mLOM connector only. It is currently the only card that can be plugged into the mLOM connector and it will provide connectivity through either a 2100 series or 2200 series IOM.

Note You must remove the adapter card to service the modular LOM.

To install a modular LOM card on the blade server, follow these steps:

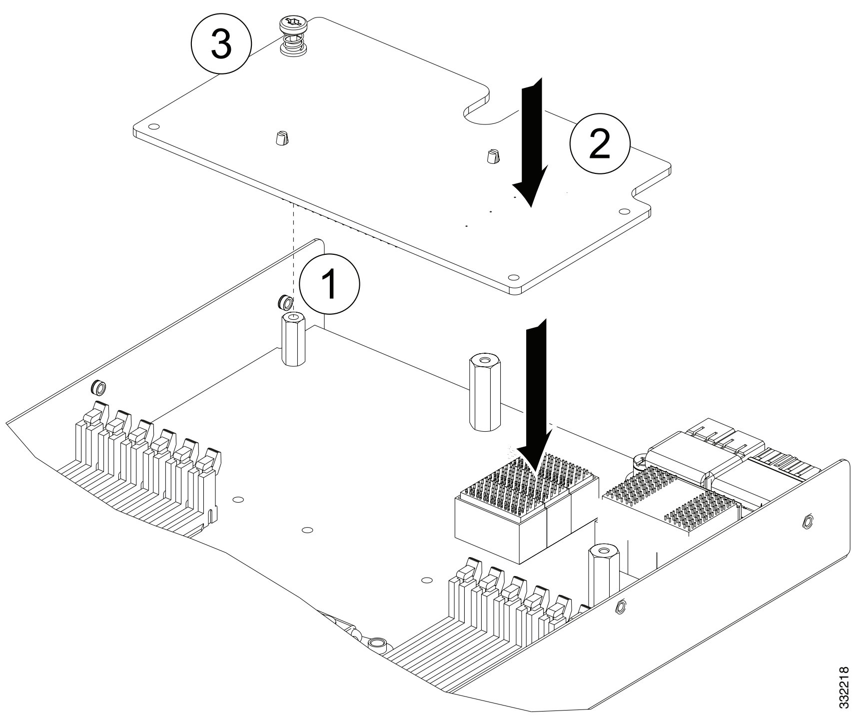
Step 1 Position the modular LOM's board connector above the motherboard connector and align the captive screw to the standoff post on the motherboard.

Step 2 Firmly press the modular LOM's board connector into the motherboard connector.

Step 3 Tighten the captive screw.

Tip To remove a modular LOM , reverse the above procedure. You might find it helpful when removing the connector from the motherboard to gently rock the board along the length of the connector until it loosens.

Figure 23 ***Installing a Modular LOM***



Installing an Adapter Card

The network adapters and interface cards all have a shared installation process and are constantly being updated. A list of currently supported and available models for this server is in the specification sheets at this URL:

http://www.cisco.com/en/US/products/ps10280/products_data_sheets_list.html

Note If a VIC 1240 mLOM is not installed, you must have an adapter card installed.

Note Use of the adapters available for this server might require an upgrade to the IOM in the chassis. The 2104XP IOM is not compatible with any Cisco-certified adapter. If a VIC 1240 mLOM card is installed, you will have connectivity through the mLOM but other adapters will not be recognized. Use of adapter slots requires Cisco UCS 2200 series IOMs.

If you are switching from one type of adapter card to another, before you physically perform the switch make sure that you download the latest device drivers and load them into the server's operating system. For more information, see the firmware management chapter of one of the Cisco UCS Manager software configuration guides.

Adapter Slot Drives

The Cisco UCS 785GB MLC Fusion-io Drive and LSI 400GB SLC WarpDrive have the same form factor as M3 adapter cards and can be installed and removed using the same procedures. Using these drives in a B200 M3 or B22 M3 blade server requires the presence of a VIC 1240 mLOM to provide blade I/O. They will not work in M1 and M2 generation Cisco UCS servers, and can be mixed with an adapter in the B420 M3 server. These drives appear in Cisco UCS Manager as regular SSDs.

To install an adapter card or adapter slot drive on the blade server, follow these steps:

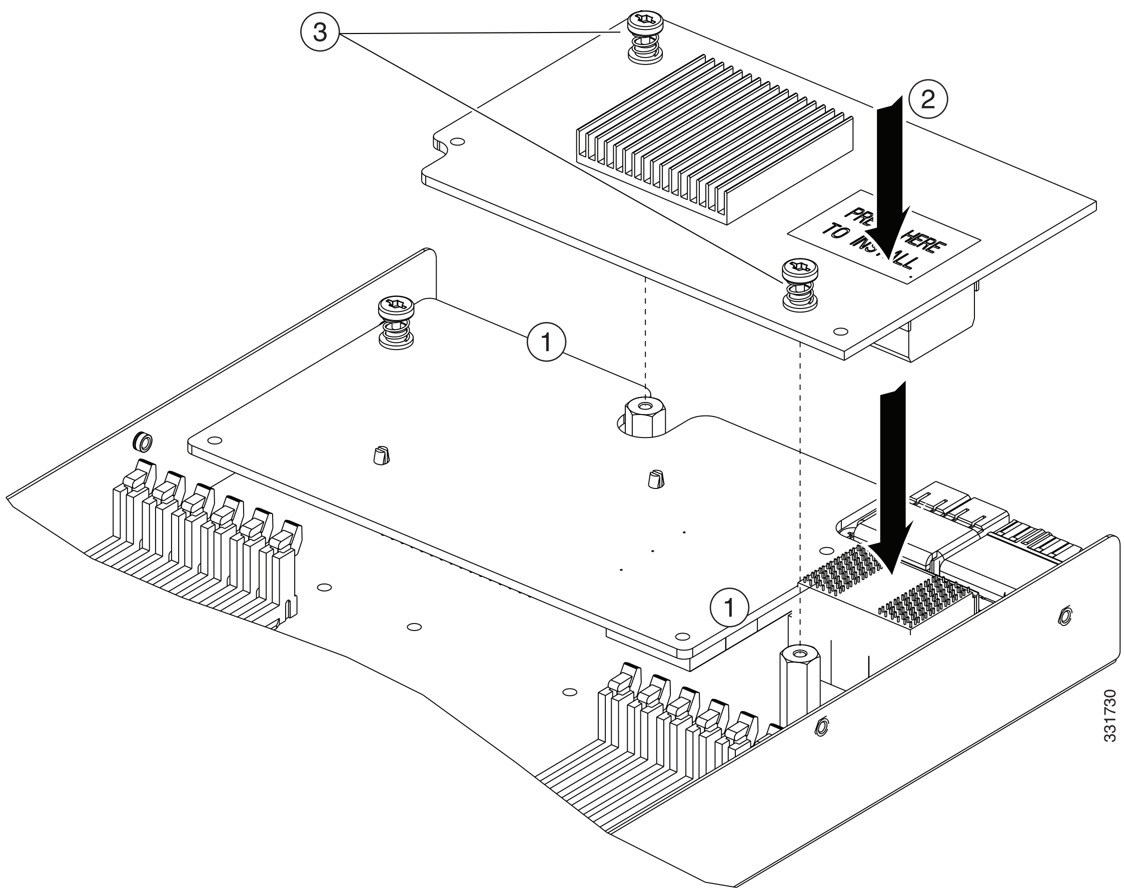
Step 1 Position the adapter board connector above the motherboard connector and align the two adapter captive screws to the standoff posts on the motherboard.

Step 2 Firmly press the adapter connector into the motherboard connector.

Step 3 Tighten the two captive screws.

Tip Removing an adapter card is the reverse of installing it. You may find it helpful when removing the connector from the motherboard to gently rock the board along the length of the connector until it loosens.

Figure 24 Installing an Adapter Card



Trusted Platform Module

The Trusted Platform Module (TPM, Cisco Product ID UCSX-TPM1-001) is a component that can securely store artifacts used to authenticate the server. These artifacts can include passwords, certificates, or encryption keys. A TPM can also be used to store platform measurements that help ensure that the platform remains trustworthy. Authentication (ensuring that the platform can prove that it is what it claims to be) and attestation (a process helping to prove that a platform is trustworthy and has not been breached) are necessary steps to ensure safer computing in all environments.

TPM is a factory-configurable option for this server. It is a requirement for the Intel Trusted Execution Technology (TXT) security feature, which must be enabled in the BIOS settings for a server equipped with a TPM. A TPM can not be added later by customers, or moved from one server to another.

To enable the TPM:

Step 1 Enable Quiet Mode in the BIOS policy of the server's Service Profile.

Step 2 Establish a direct connection to the server, either by connecting a keyboard, monitor, and mouse to the front panel using a KVM dongle (N20-BKVM shown in Figure 2) or by other means.

Step 3 Reboot the server. Press **F2** during reboot to enter the BIOS setup screens.

Step 4 On the Advanced tab, select **Trusted Computing** and press **Enter**.

Step 5 Set the TPM Support optionto **Enable**.

Step 6 Press **F10** to save and exit. Allow the server to finish booting.

Server Troubleshooting

For general server troubleshooting information, refer to the "Troubleshooting Server Hardware" chapter of the *Cisco UCS Troubleshooting Guide*.

Server Configuration

UCS servers are intended to be configured and managed using UCS Manager. Refer to the *UCS Manager Configuration Guide* appropriate for your UCS Manager version.

Server Specifications

Table 3 Physical Specifications for the Cisco UCS B200 M3 Blade Server

Specification	Value
Height	1.95 inches (50 mm)
Width	8.00 inches (203 mm)
Depth	24.4 inches (620 mm)
Weight	15.0 lbs (6.8 kg) [1]

1. The system weight listed here is an estimate for a fully configured system and will vary depending on peripheral devices installed.

Related Documentation

The documentation set for the Cisco Unified Computing System environment is described in full at:

http://www.cisco.com/go/unifiedcomputing/b-series-doc

For specifics on which components are supported refer to the server's Technical Specifications ordering guide at the following link:

http://www.cisco.com/en/US/products/ps10493/products_data_sheets_list.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

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